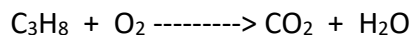


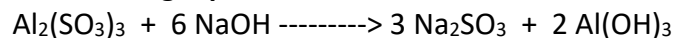
## Limiting Reagent Worksheet #1

**1. Given the following reaction: (Balance the equation first!)**



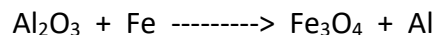
- a. If you start with 14.8 g of  $\text{C}_3\text{H}_8$  and 3.44 g of  $\text{O}_2$  determine the limiting reagent
- b. Determine the number of moles of carbon dioxide produced
- c. Determine the number of grams of  $\text{H}_2\text{O}$  produced
- d. Determine the number of grams of excess reagent left

**2. Given the following equation:**



- a. If 10.0 g of  $\text{Al}_2(\text{SO}_3)_3$  is reacted with 10.0 g of  $\text{NaOH}$ , determine the limiting reagent
- b. Determine the number of moles of  $\text{Al}(\text{OH})_3$  produced
- c. Determine the number of number grams of  $\text{Na}_2\text{SO}_3$  produced
- d. Determine the number of grams of excess reagent left over in the reaction

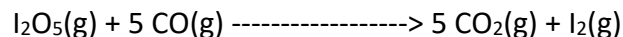
**3. Given the following equation:**



- a. If 25.4 g of  $\text{Al}_2\text{O}_3$  is reacted with 10.2 g of  $\text{Fe}$ , determine the limiting reagent
- b. Determine the number of moles of  $\text{Al}$  produced
- c. Determine the number of grams  $\text{Fe}_3\text{O}_4$  produced
- d. Determine the number of grams of excess reagent left over in the reaction

## Limiting Reagent Worksheet #2

### 1. Consider the reaction

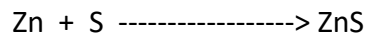


- a. 80.00 grams of diiodine pentoxide  $\text{I}_2\text{O}_5$  reacts with 28.00 grams of carbon monoxide, CO.

Determine the mass of iodine  $\text{I}_2$ , which could be produced?

- b. If, in the above situation, only 0.160 moles of iodine,  $\text{I}_2$  was produced.
- What mass of iodine was produced?
  - What percentage yield of iodine was produced

### 2. Zinc and Sulphur react to form zinc sulphide according to the equation.



**If 25.0 g of zinc and 30.0 g of Sulphur are reacted,**

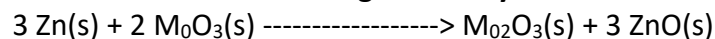
- Which chemical is the limiting reactant?
- How many grams of ZnS will be formed?
- How many grams of the excess reactant will remain after the reaction is over?

### 3. Which element is in excess when 3.00 grams of Mg is ignited in 2.20 grams of pure oxygen?

**What mass is in excess? What mass of MgO is formed?**

### 4. How many grams of $\text{Al}_2\text{S}_3$ are formed when 5.00 grams of Al is heated with 10.0 grams S?

### 5. When $\text{M}_2\text{O}_3$ and Zn are heated together they react

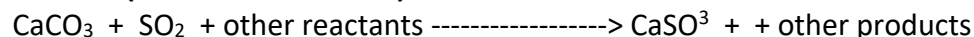


**What mass of ZnO is formed when 20.0 grams of  $\text{M}_2\text{O}_3$  is reacted with 10.0 grams of Zn?**

### 6. Silver nitrate, $\text{AgNO}_3$ , reacts with ferric chloride, $\text{FeCl}_3$ , to give silver chloride, $\text{AgCl}$ , and ferric nitrate, $\text{Fe}(\text{NO}_3)_3$ . In a particular experiment, it was planned to mix a solution containing 25.0 g of $\text{AgNO}_3$ with another solution containing 45.0 grams of $\text{FeCl}_3$ .

- Write the chemical equation for the reaction.
- Which reactant is the limiting reactant?
- What is the maximum number of moles of  $\text{AgCl}$  that could be obtained from the mixture?
- What is the maximum number of grams of  $\text{AgCl}$  that could be obtained?
- How many grams of the reactant in excess will remain after the reaction is over?

### 7. Solid calcium carbonate, $\text{CaCO}_3$ , is able to remove sulphur dioxide from wasted gases by the reaction (balanced as written):



**In a particular experiment, 255 g of  $\text{CaCO}_3$  was exposed to 135 g of  $\text{SO}_2$  in the presence of an excess amount of the other chemicals required for the reaction.**

- What is the theoretical yield of  $\text{CaSO}_3$ ?
- If only 198 g of  $\text{CaSO}_3$  was isolated from the products, what was the percentage yield of  $\text{CaSO}_3$  in this experiment?

